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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,460	10/15/2003	Shigeki Motoyama	SON-1907/CON	4695

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EXAMINER

JORGENSEN, LELAND R

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/684,460

Applicant(s)

MOTOYAMA ET AL.

Examiner

Leland R. Jorgensen

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 November 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14 - 28 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 14 - 21 and 24 - 28 is/are rejected.  
7) ☒ Claim(s) 22 and 23 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 14 – 21, 24 – 26, and 28 are rejected under 35 U.S.C. 102(b) as being unpatentable over Burk, USPN 5,228,562, in view of Itoh et al., WO 94/14112, and of Kito et al., USPN 4,554,565.

### **Claim 14**

Burk teaches an electronic apparatus having an input device. The input device comprises a sheet-type switch portion [conventional analog membrane switch] having a first sheet [top membrane], a second sheet [bottom membrane], a first electrode [two opposing parallel electrode strips across third and fourth parallel edges], and a second electrode [two opposing parallel electrode strips across first and second parallel edges]. The first and second electrodes are between the first sheet and the second sheet. The first electrode is structurally adapted to come into electrical contact with the second electrode. Burk, col. 1, line 14 – col. 2, line 27.

Burk does not teach a reversible chromatic layer with the first sheet being between the reversible chromatic layer and the first electrode.

Itoh teaches a reversible chromatic layer [color changing layer 50] located on a front surface of the sheet-type input portion [sensor means 1 – 4]. Itoh, page 8, line 19 – page 9, line 13; and figure 1.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the reversible chromatic layer as taught by Itoh with the sheet-type switch as taught by Burk, specifically placing the first sheet between the reversible chromatic layer and the first electrode. This would allow a temporary optical display of the position on the input surface where the surface has been touched. Itoh invites such combination by teaching,

It is an object of the present invention to provide a data input device comprising a press-sensitive input surface, which is capable of temporary optical display of the handwriting applied to the pressure-sensitive input surface in a simple yet reliable manner.

Itoh, page 3.

Neither Burk nor Itoh does not specifically teach that the reversible chromatic layer has at least two coatings.

Kito teaches that a reversible chromatic layer that has two coatings [first reversible thermochromic image layer 3-1 or 3-2 and second reversible thermochromic image layer 4-1 or 4-2]. Each of the two coatings exhibits color change in response to temperature change. Kito, col. 1, lines 6 – 18; col. 2, lines 38 – 44; and figures 1 – 6.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the two layers as taught by Kito with the electronic apparatus having an input device as taught by Itoh to produce more intense color. Kito invites such combination by teaching,

The present invention relates to method for producing a reversible thermochromic display. More particularly, the invention relates to a method for producing a reversible thermochromic display composed of two or more overlapping layers of image formed on a support, at least one of which layers provides a reversible thermochromic image, wherein the colored images on the respective layers have different visual densities and the reversible thermochromic image changes color at a temperature lower or higher than a predetermined point and provides a color that is more intense and more easily discernible than the pale color of the other images.

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Kito, col. 1, lines 6 – 18. Kito adds,

The reversible thermochromic display of the present invention finds many applications since it ensures an almost instantaneous reversible color change to red, blue, yellow, green, orange and purple, as well as many colors of delicate shades (by modifying the composition) within a specific temperature range. A plurality of images can be printed one on top of another on the support by any of a variety of known printing techniques such as gravure, screen and offset printing.

Kito, col. 2, lines 5 – 13. Kito, after teaching several applications, concludes,

Each of the labels produced distinct images successively at the appropriate temperature below or above a predetermined temperature. The images so produced were darker than the images on the other layers and hence were more visible than the latter. The color change was reversible and consistent results were obtained in repeated experiments.

Kito, col. 4, lines 40 – 55.

#### **Claims 15, 16, and 17**

Burk teaches that the sheet-type switch portion includes an insulated spacer [intermediate circuit spacer 20] between the first sheet and the second sheet, the spacer being adjacent the first and second electrodes.

#### **Claim 18**

Kito teaches that the first coating of the coatings has a temperature dependent chromatic characteristic different than the second coating. Kito, col. 2, lines 45 – 60; and figure 7.

#### **Claim 19**

Kito shows the first coating [first reversible thermochromic image layer 3-1 or 3-2] laterally adjacent to the second coating [second reversible thermochromic image layer 4-1 or 4-2]. Kito, figures 4 – 6.

**Claim 20**

Kito shows the first coating [first reversible thermochromic image layer 3-1 or 3-2] in contact with the second coating [second reversible thermochromic image layer 4-1 or 4-2]. Kito, figures 4 – 6.

**Claim 21**

Kito shows a portion of the second coating [second reversible thermochromic image layer 4-2] removed to expose the first coating [first reversible thermochromic image layer 3-2]. Kito, figures 1 – 3.

**Claims 24 and 25**

Itoh teaches that the reversible chromatic layer is located on a front surface of the sheet-type input portion and an input operation is effected by direct contact with the reversible chromatic layer. Itoh, page 8, line 19 – page 9, line 13; and figure 1. Itoh teaches that the reversible chromatic layer is exposed outward. Itoh, page 1, lines 3 – 7.  
an input operation is effected by direct contact with the reversible chromatic layer.

**Claims 26 and 28**

Burk teaches that first sheet or both sheets may be structurally adapted to be plastically deformed. Burk, col. 1, lines 39 – 43.

***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible

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harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 14 – 21 and 24 - 28 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, and 4 – 7, respectively, of U.S. Patent No. 6,690,362 B1 in view of Burk.

Claims 1, 2, 4 – 8, and 10 - 13 of U.S.P.N. 6,690,362 respectively teach all aspects of claims 14 – 21 and 24 - 28 except for the first and second electrodes, spacers, and details of the two sheets.

Burk teaches an electronic apparatus having an input device. The input device comprises a sheet-type switch portion [conventional analog membrane switch] having a first sheet [top membrane], a second sheet [bottom membrane], a first electrode [two opposing parallel electrode strips across third and fourth parallel edges], and a second electrode [two opposing parallel

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electrode strips across first and second parallel edges]. The first and second electrodes are between the first sheet and the second sheet. The first electrode is structurally adapted to come into electrical contact with the second electrode. Burk, col. 1, line 14 – col. 2, line 27.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the details taught by Itoh with the input device as taught by 6,690,362 to make a inexpensive well-known membrane switch that would temporarily show the touch points.

### ***Response to Arguments***

Applicant's arguments with respect to claims 14 - 28 have been considered but are moot in view of the new ground(s) of rejection.

### ***Allowable Subject Matter***

5. Claims 22 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 22 and 23 teach a sheet-type switch portion being between the heat-insulating layer and the reversible chromatic layer. None of the prior art cited teach such heat-insulating layer.



***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Klein, USPN 5,072,077; Kurachi et al., USPN 4,701,579; and Kawauchi, USPN 4,501,938; each teach a sheet-type switch similar to Burk.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

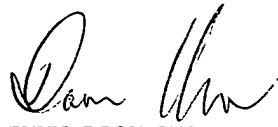
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leland R. Jorgensen whose telephone number is 571-272-7768. The examiner can normally be reached on Monday through Friday, 10:00 am through 6:00 pm..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lrj

  
DENNIS-DOON CHOW  
PRIMARY EXAMINER